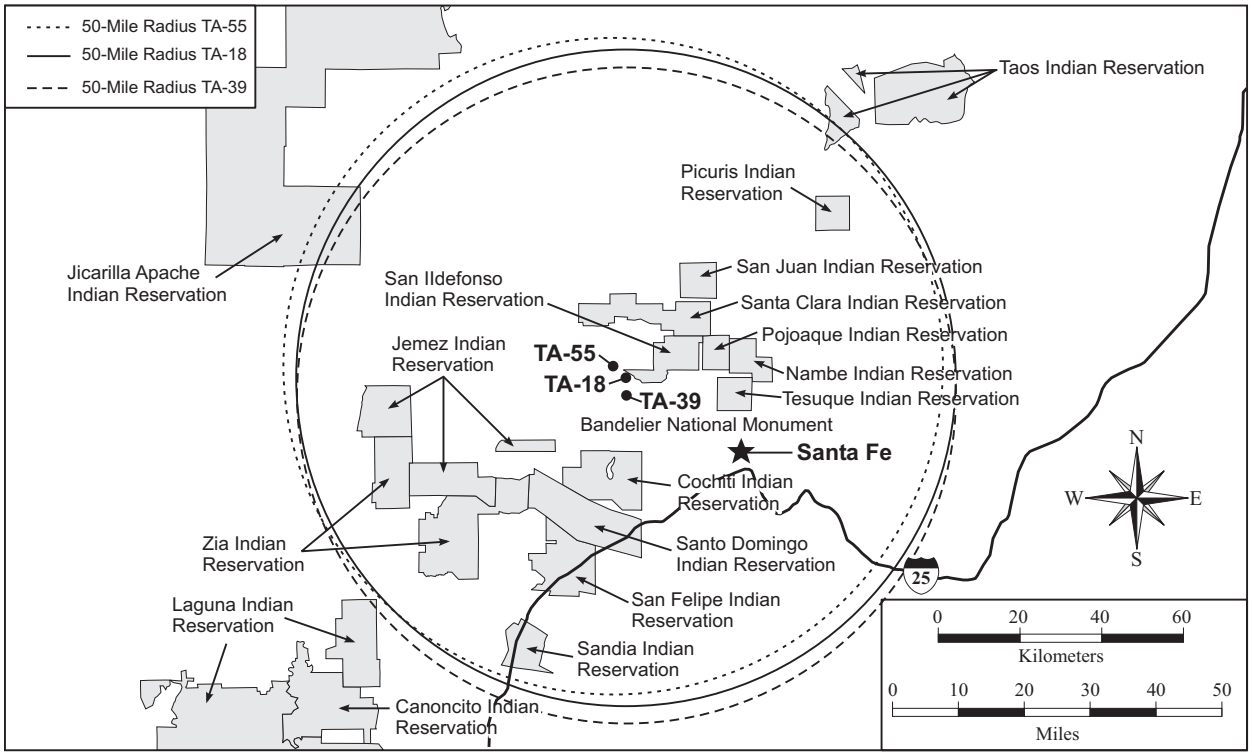

Figure E–7 Indian Reservations near LANL

Impacts of Accidents on Minority and Low-Income Populations

In terms of radiological risk, the most severe accident among those evaluated in this EIS would result in hydrogen denotation at SHEBA (Section 5.2.10.2 of Chapter 5). All accident risks to any member of the public are at least four orders of magnitude less than one latent cancer fatality. Hence, none of the postulated accidents would pose a significant radiological risk to the public, including minority and low-income individuals and groups within the population at risk.

As discussed in Section C.2 of Appendix C, consequences due to accidents were calculated with the MACCS2 Model. This model evaluates doses due to inhalation of aerosols, such as respirable plutonium, and exposure to the plume. Longer term effects including resuspension/inhalation and ingestion of contaminated crops, wildlife, and fish are not included in the calculation. Such effects are largely controllable through interdiction. In order to conservatively estimate the radiological dose due to inhalation, the deposition velocity was set equal to zero during the MACCS2 calculations. Radioactive materials that would be deposited on surfaces remained airborne and available for inhalation. Given the rarity of accidents that could impact offsite individuals and the conservatism in the calculations of inhaled dose, implementation of the No Action Alternative or of any of the other proposed alternatives, each of which involves construction and retention of all or some of the TA-18 activities at LANL, would not be expected to pose a significant radiological risk to low-income or minority populations residing near LANL, including low-income and minority groups that depend upon subsistence consumption of locally grown crops and wildlife.

E.5.2 Sandia National Laboratories/New Mexico (SNL/NM)

Under the SNL/NM Alternative, security Category I/II activities currently conducted at TA-18 would be relocated to TA-V at SNL/NM. Security Category III/IV and SHEBA activities would remain at LANL. **Figure E–8** and **Table E–2** show the counties at radiological risk and the composition of the populations of

those counties, respectively. The counties are: Bernalillo, Cibola, McKinley, Sandoval, San Miguel, Santa Fe, Socorro, Torrance, and Valencia. Four of these counties (Bernalillo, Sandoval, Santa Fe, and San Miguel) would also be potentially affected by activities that would occur at LANL.

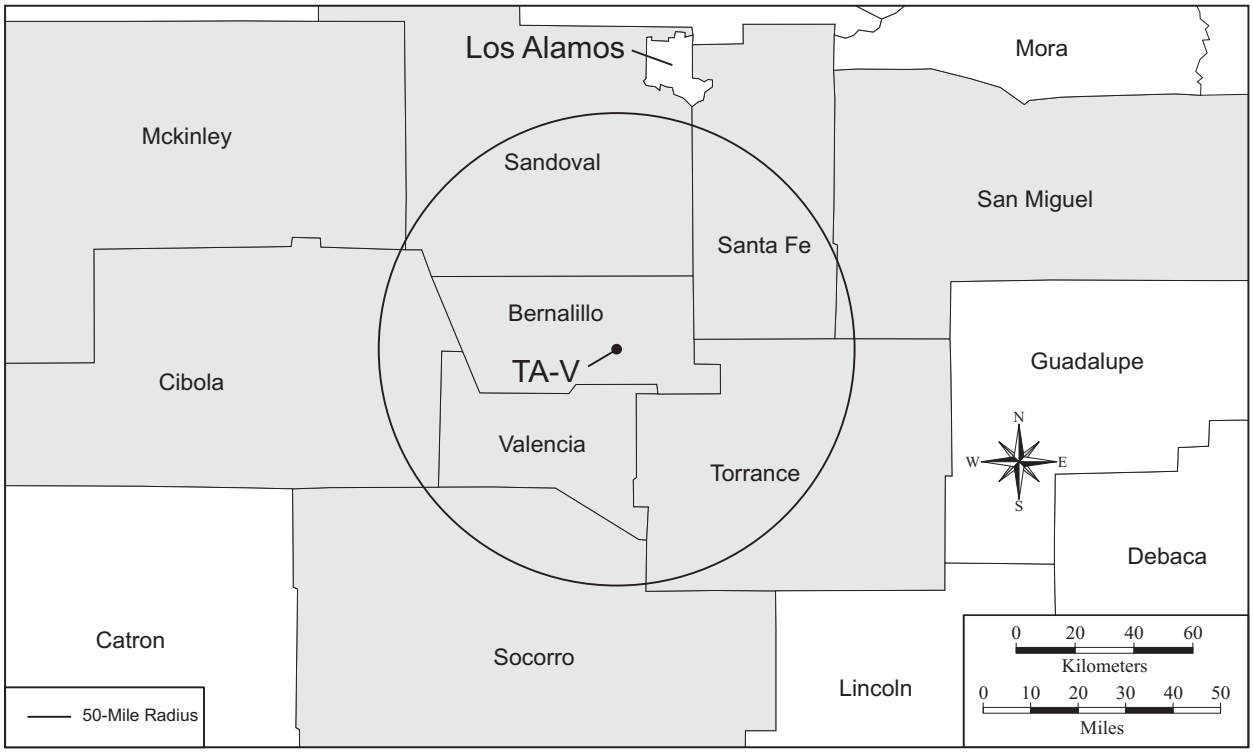

Figure E–8 Potentially Affected Counties Surrounding SNL/NM

Table E–2 Populations in Potentially Affected Counties Surrounding SNL/NM in 2000

Population Group	*Population*	*Percentage of Total*
Total	1,007,538	100.0
Minority	569,428	56.5
Hispanic/Latino	416,189	41.3
Black/African American	17,533	1.7
American Indian/Alaska Native	106,093	10.5
Asian	13,213	1.3
Native Hawaiian/Pacific Islander	647	0.1
Two or More Races	15,753	1.6
Some Other Race	1,644	0.2
White	436,466	43.3

Data shown in Table E–2 reflects the results of Census 2000. The Hispanic or Latino population shown in Table E–2 includes persons of any race who designated themselves as having Hispanic or Latino origins. Populations for each race shown in the last seven rows of Table E–2 did not characterize themselves as having Hispanic or Latino origins. As discussed in Section E.2 above, persons indicating that they were multiracial are included in the estimate of the minority population given in the second row of the table. Approximately two percent of the total U.S. population selected two or more races during Census 2000. Of those, approximately one-third selected "White" and "Some Other Race." Since "White" and "Other Race" are not included in the CEQ's current definition of minority races (CEQ 1997), the minority population shown in Table E–2 is overestimated. However, since non-Hispanic persons in the group "Two or More

Races" were less than two percent of the total population of these counties in 2000, the overestimate is relatively small.

Figure E–9 compares Census 2000 data with that for 1990 (to the extent that the data can be compared). There are several reasons that minority data from Census 1990 cannot be directly compared with Census 2000 data. During the 1990 Census, Asian and Pacific Islanders were counted together in a single category. However, during 2000 Census, "Native Hawaiian and Other Pacific Islander" and "Asian" were separate responses (selection of either one or both was an option). As a result, the 1990 population composed of Native Hawaiian and Other Pacific Islanders cannot be identified as a population distinct from Asians. In addition, during the 1990 Census, respondents were asked to designate themselves as members of only a single race. During Census 2000, respondents could select any combination of all of the six single race categories. As indicated in Figure E–9, there is no multiracial data available from the 1990 Census.

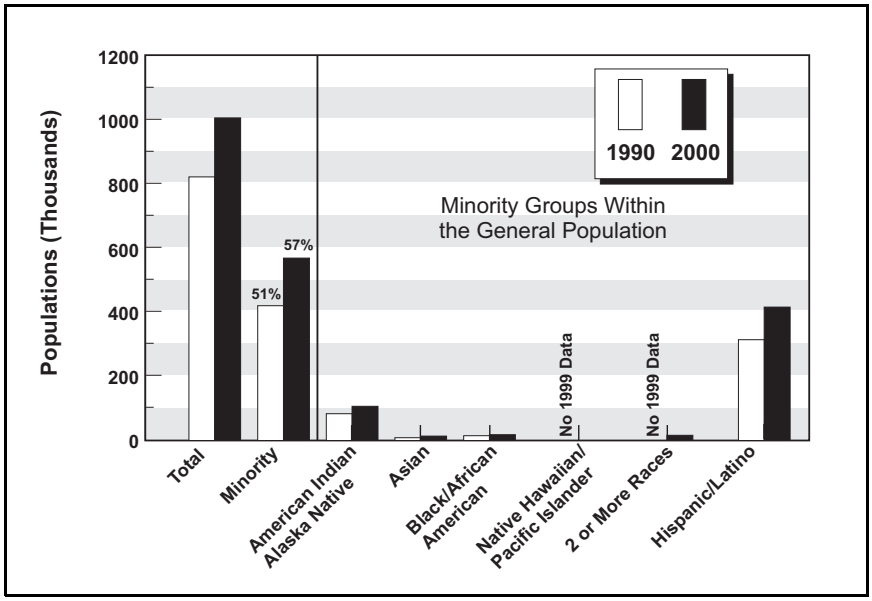

Figure E–9 Comparison of Potentially Affected County Populations near SNL/NM in 1990 and 2000

Bearing in mind the changes in racial categories and enumeration that occurred between the 1990 Census and Census 2000, the following approximate comparison can be made. In the decade from 1990 to 2000, the minority population in potentially affected counties increased from approximately 51 percent to 57 percent. Hispanics and American Indians composed approximately 92 percent of the total minority population. This is commensurate with characteristics of the State of New Mexico. In the same decade, the percentage minority population of New Mexico increased from approximately 49 percent to 55 percent. As a percentage of the total population in 1990, New Mexico had the largest minority population among all of the contiguous states. That was also found to be the case in the year 2000.

Figure E–10 shows the geographical distribution of minorities residing near TA-V in 1990 using block group resolution. Shaded block groups shown in Figure E–10 indicate that the percentage minority population residing in those block groups exceeded that for the State of New Mexico as a whole and was more than twice the percentage minority population for the nation as a whole. **Figure E–11** shows the geographical distribution of the low-income population residing near TA-V in 1990. In 1990, approximately 13 percent of the nation's resident population reported incomes below the poverty threshold, and approximately 21 percent of New Mexico's population was composed of low-income individuals. Shaded block groups in Figure E–11 indicate that the percentage low-income population residing in those block groups exceeded that for New Mexico as a whole and was more than twice the percentage low-income population for the nation as a whole.

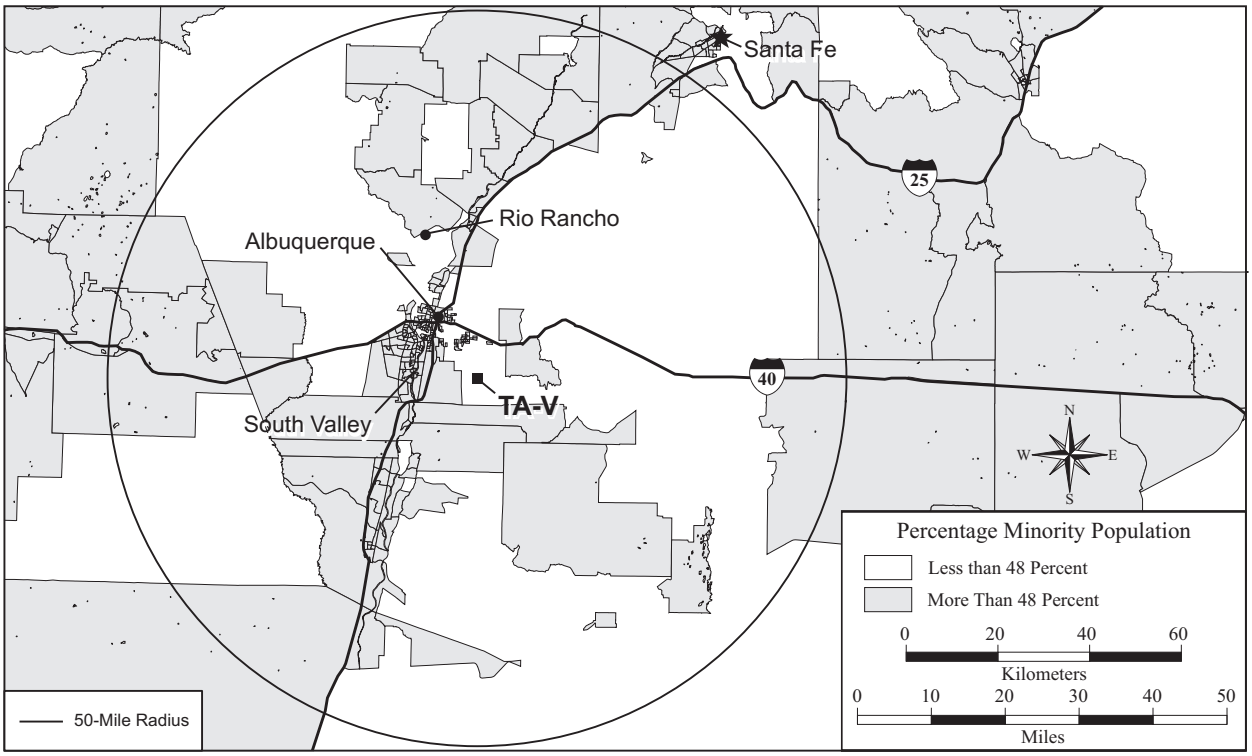

Figure E–10 Geographical Distribution of Minority Populations Residing near TA-V

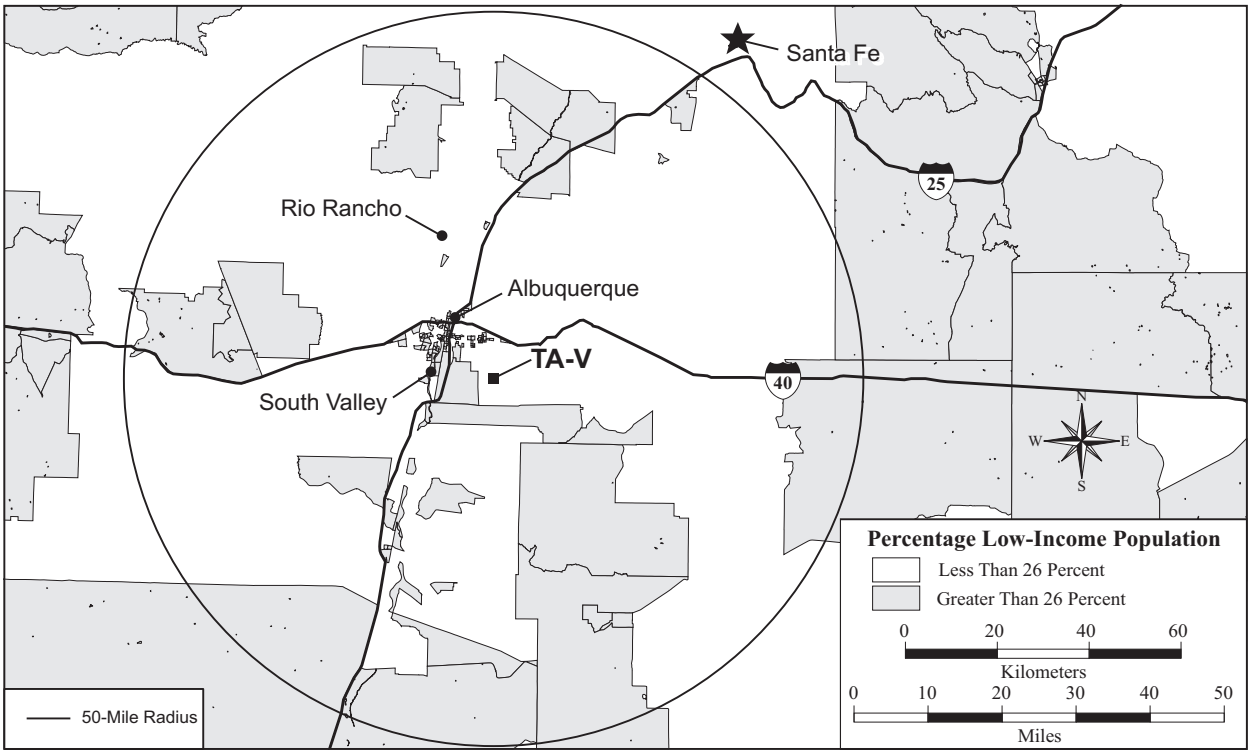

Figure E–11 Geographical Distribution of Low-Income Populations Residing near TA-V

A total of approximately 273,569 minority individuals and 89,146 low-income persons resided within 80 kilometers (50 miles) of TA-V in 1990. **Figure E–12** shows the cumulative percentage of these populations residing at a given distance from TA-V. For example, approximately 83 percent of the total minority population of 273,569 resided within 32 kilometers (20 miles) of TA-V, and approximately 83 percent of the total low-income population of 89,146 resided within 20 miles of TA-39. The curve representing percentages of minority residents (solid line in Figure E–12) is nearly identical in shape to that representing percentages of low-income residents (dashed line in Figure E–12). All percentages rise sharply near the boundary of Kirtland Air Force Base. Approximately 43 percent of the minority population (113,502 minority individuals) and 49 percent of the low-income population (43,437 low-income individuals) reside within 16 kilometers (10 miles) of TA-V. All of the population groups represented in Figure E–12 are concentrated in the Albuquerque metropolitan area.

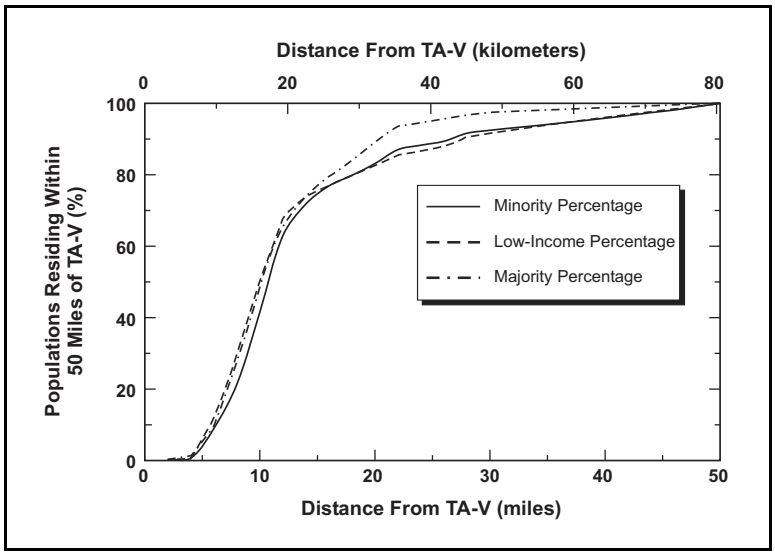

Figure E–12 Cumulative Percentage of Populations Residing within 80 Kilometers (50 Miles) of TA-V

Impacts of Construction on Minority and Low-Income Populations

Construction of new facilities at TA-V would occur under implementation of the SNL/NM Alternative. As discussed throughout Section 5.3, construction impacts at TA-V would be small and would not be expected to extend beyond the boundary of Kirtland Air Force Base. Construction activities at TA-V would have little or no impact on the surrounding minority and low-income populations.

Impacts of Normal Operations on Minority and Low-Income Populations

As discussed in Section 5.3.10.1, incident-free operations at TA-V would result in the activation of 10 curies per year of the radionuclide argon-41. Argon-41 is a colorless, inert gas with a half-life of approximately one hour and 48 minutes. The expected number of latent cancer fatalities that would result from external exposure to argon-41 among the general public surrounding SNL/NM would be approximately 1×10^{-5}. SNL/NM is surrounded by Indian reservations that lie completely or partially within the area at radiological risk (see **Figure E–13**). Hence, subsistence consumption of radiologically-contaminated local crops and wildlife is a concern. However, argon-41 is a noble gas that decays into a stable isotope of potassium. No internal dose, either from ingestion or inhalation of argon-41, would result from normal operations at TA-V. Therefore, normal operations conducted under the SNL/NM Alternative would not pose a significant radiological risk to resident minority or low-income populations.

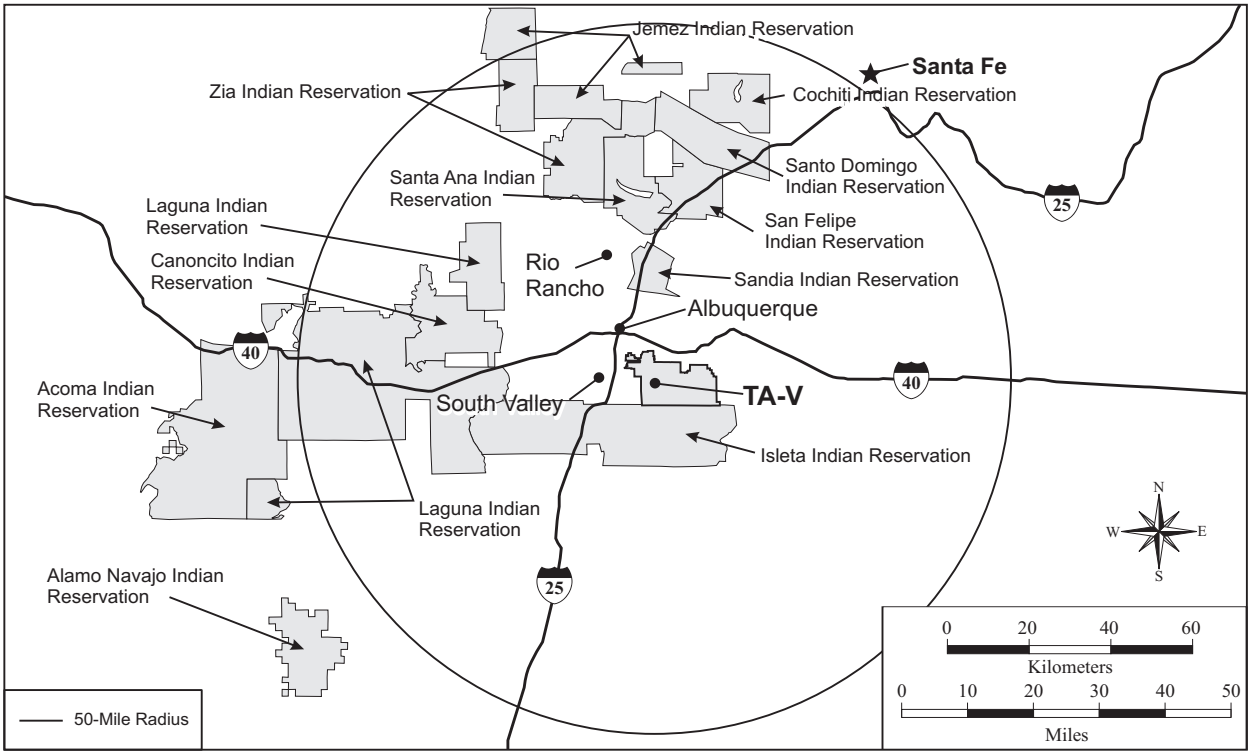

Figure E–13 Indian Reservations near TA-V

Impacts of Accidents on Minority and Low-Income Populations

In terms of radiological consequences and risk to the offsite public, the most severe accident among those evaluated in this EIS would result in a high pressure spray fire at TA-V (Section 5.3.10.2 of Chapter 5). All accident risks to any member of the public are at least seven orders of magnitude less than one latent cancer fatality. Hence, none of the postulated accidents would pose a significant radiological risk to the public, including minority and low-income individuals and groups within the population at risk.

As discussed in Section C.2 of Appendix C, consequences due to accidents were calculated with the MACCS2 Model. This model evaluates doses due to inhalation of aerosols, such as respirable plutonium, and exposure to the plume. Longer term effects including resuspension/inhalation and ingestion of contaminated crops, wildlife, and fish are not included in the calculation. Such effects are largely controllable through interdiction. In order to conservatively estimate the radiological dose due to inhalation, the deposition velocity was set equal to zero during the MACCS2 calculations. Radioactive materials that would be deposited on surfaces remained airborne and available for inhalation. Given the rarity of accidents that could impact offsite individuals and the conservatism in the calculations of inhaled dose, implementation of the SNL/NM Alternative would not be expected to pose a significant radiological risk to resident low-income or minority populations, including low-income and minority groups that depend upon subsistence consumption of locally grown crops and wildlife.

E.5.3 Nevada Test Site (NTS)

Under the NTS Alternative, security Category I/II activities currently conducted at TA-18 would be relocated to the Device Assembly Facility (DAF) at NTS. Security Category III/IV and SHEBA activities would remain at LANL. **Figure E–14** and **Table E–3** show the counties at radiological risk under implementation of the NTS Alternative and the composition of the population of these counties, respectively. The Counties

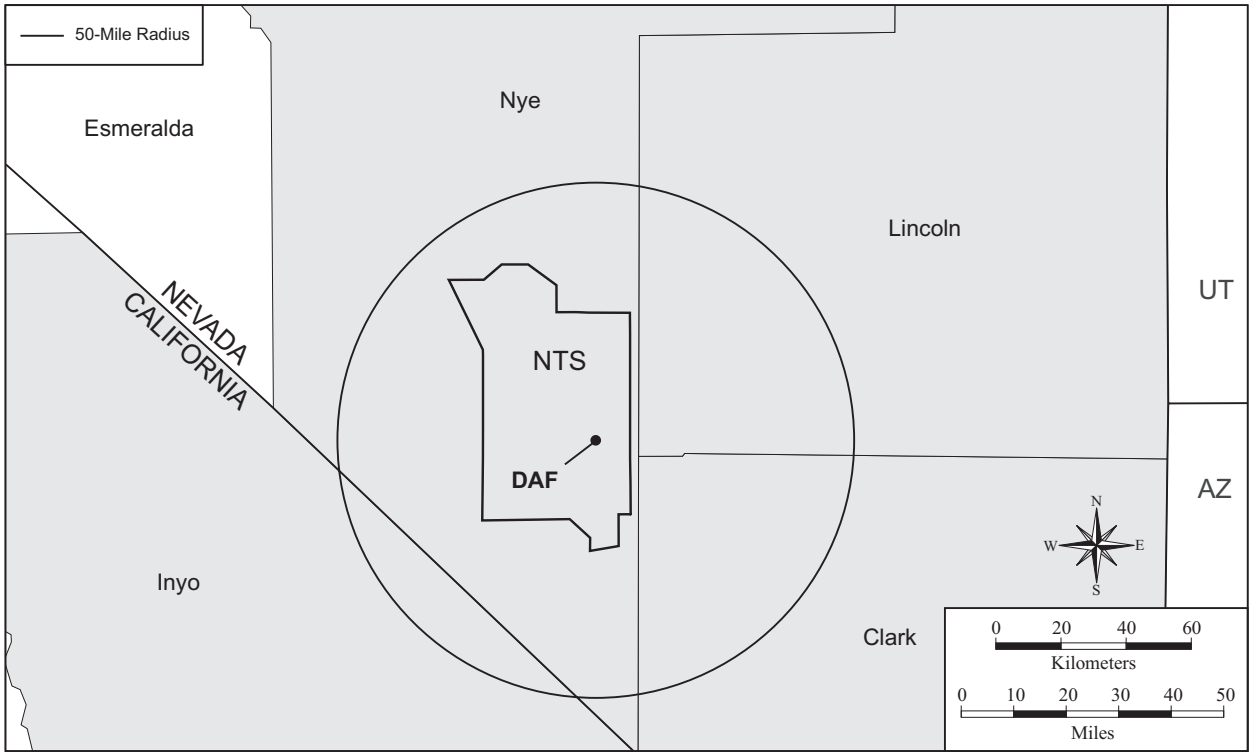

Figure E–14 Potentially Affected Counties near DAF

in Nevada are: Clark, Lincoln, and Nye. A portion of Inyo County, California is also within the area of potential radiological effects.

Table E–3 Populations in Potentially Affected Counties Surrounding DAF in 2000

Population Group	*Population*	*Percent of Total*
Total	1,430,360	100.0
Minority	554,986	38.8
Hispanic/Latino	307,334	21.5
Black/African American	121,865	8.5
American Indian/Alaska Native	10,092	0.7
Asian	71,639	5.0
Native Hawaiian/Pacific Islander	5,980	0.4
Two or More Races	38,076	2.7
Some Other Race	2,133	0.1
White	873,241	61.1

Data shown in the Table E–3 reflects the results of Census 2000. The Hispanic or Latino population shown in Table E–3 includes persons of any race who designated themselves as having Hispanic or Latino origins. Populations for each race shown in the last seven rows of Table E–3 did not characterize themselves as having Hispanic or Latino origins. As discussed in Section E.2 above, persons indicating that they were multiracial are included in the estimate of the minority population given in the second row of the table. Approximately two percent of the total U.S. population selected two or more races during Census 2000. Of those, approximately one-third selected "White" and "Some Other Race." Since "White" and "Other Race" are not included in the CEQ's current definition of minority races (CEQ 1997), the minority population shown in Table E–3 is overestimated. However, since non-Hispanic persons in the group "Two or More